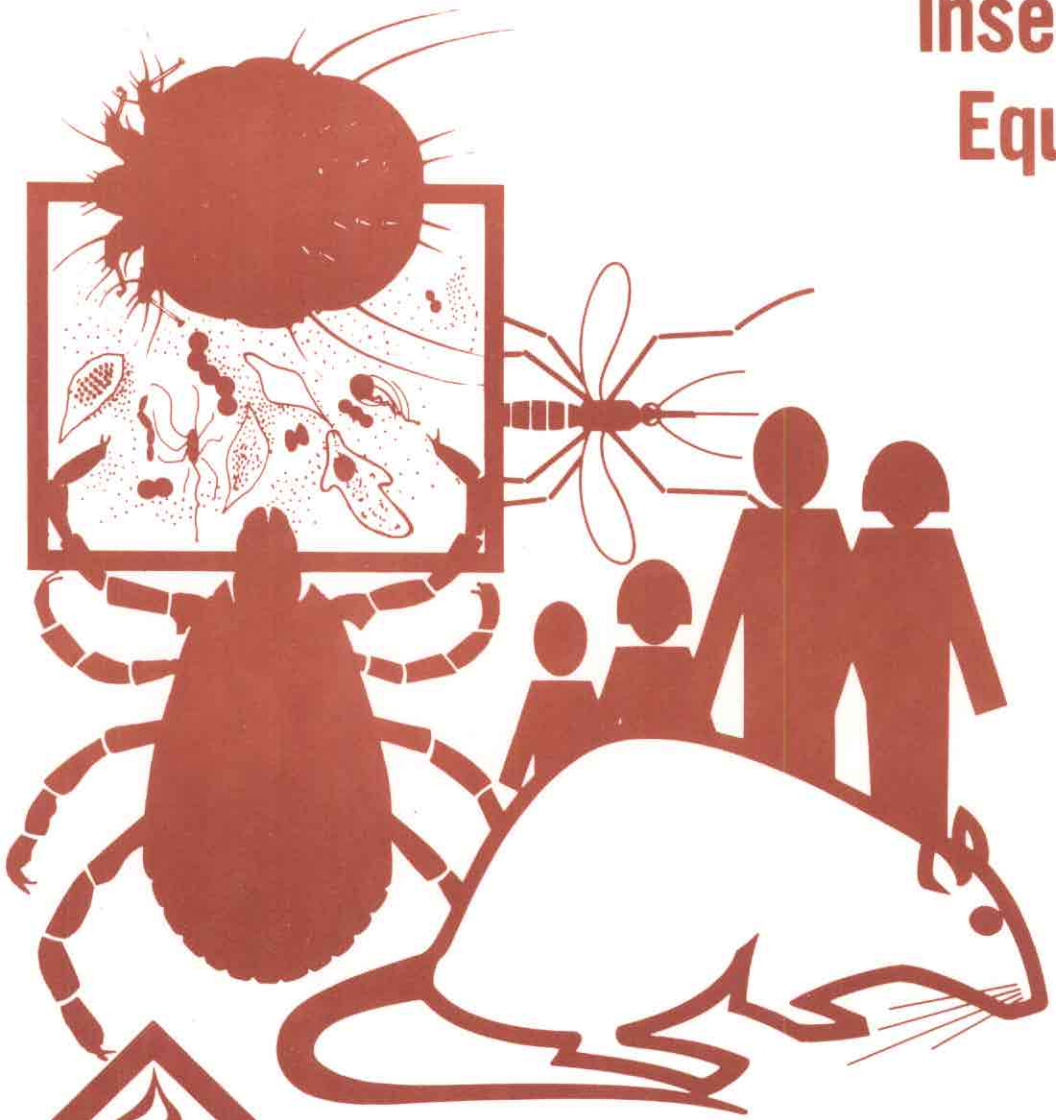
CDC

LESSON 3

SELF-STUDY COURSE 3013-G

Vector-Borne Disease Control

Insecticidal Equipment



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SELF-STUDY

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
Centers for Disease Control
Public Health Practice Program Office
Atlanta, Georgia 30333

VECTOR-BORNE DISEASE CONTROL

Self-Study Course 3013-G

LESSON 3: INSECTICIDAL EQUIPMENT

I: LESSON CONSISTS OF:

Part I: 25 multiple choice questions
Part II: 25 true-false questions

II: REFERENCE:

Insecticide application equipment for the control of insects of public health importance.

III: TOPICS AND READING ASSIGNMENTS:

Lesson 3 - Objectives

Upon successful completion of Lesson 3, the student should be able to correctly:

- Identify appropriate procedures for the selection of insecticide application equipment, methods of applying insecticides, and maintenance of applicator equipment.
- Identify the component parts of selected insecticide application equipment, the functions of each part, and their relative importance in delivering correct amounts of insecticidal formulations.

LESSON 3: INSECTICIDAL EQUIPMENT

Part I: Multiple Choice

1. Insecticides can be applied as:

   A. Liquids.
   B. Aerosols.
   C. Solids.
   D. All of the above.

2. Solid formulations can be applied as:

   A. Granules.
   B. Dusts.
   C. Pellets.
   D. All of the above.

3. Which of the following is considered to be the mainstay of most insect control projects?

   A. Hand pump atomizer
   B. Aerosol dispenser
   C. Compressed air sprayer
   D. Pistol sprayer

4. The compressed air sprayer consists of a tank and all of the following EXCEPT:

   A. An agitator.
   B. A valve, wand, and nozzle.
   C. An air pump.
   D. A spray hose.

5. The air pump of the compressed air sprayer is made up of:

   A. A handle and a rod.
   B. A piston and a piston cup.
   C. A cylinder and a check valve.
   D. All of the above.

6. Natural rubber should not be used as parts of sprayers because:

   A. It is difficult to obtain and is too expensive.
   B. It is disintegrated by the action of some spray solvents.
   C. It is too flexible.
   D. It is difficult to clean.

7. The most important part of the sprayer is the:

   A. Agitator.
   B. Nozzle.
   C. Air pump.
   D. Spray hose.

8. The primary function(s) of the nozzle on a sprayer is (are):

   A. To cut the insecticide stream on and off.
   B. To obtain uniform distribution of insecticides.
   C. To permit air to be pumped into the sprayer.
   D. All of the above.

9. The delivery rate of a sprayer depends upon:

   A. The tank pressure and the size of the aperture of the tip.
   B. The concentration of insecticide.
   C. The weight of oil used.
   D. The distance the nozzle is held from the surface being sprayed.

10. Teejet nozzles are rated according to:

   A. The angle of the spray as it leaves the nozzle, and the output in tenths of gallons per minute at 40 psi.
   B. The size of the nozzle and the angle covered by the spray as it leaves the nozzle.
   C. The type of whorl chamber and the size of the spray particles.
   D. The size of the nozzle, and the output, in tenths of gallons per minute, at 40 psi.

11. A number 8002 Teejet nozzle produces:

   A. A solid spray pattern, 0° angle, at 0.2 gallons per minute.
   B. A flat spray pattern, 80° angle, at 0.20 gallons per minute.
   C. A flat spray pattern, 50° angle, at 0.4 gallons per minute.
   D. A hollow cone spray pattern, 80° angle, at 0.15 gallons per minute.

12. A number 5004 Teejet nozzle is used for:

   A. Residual spraying on very smooth surfaces.
   B. Residual spraying on ordinary surfaces.
   C. Residual spraying on porous surfaces.
   D. Mosquito larviciding.

13. The pattern of the sprayed insecticide depends primarily on:

   A. The type of nozzle used.
   B. The pressure in the sprayer tank.
   C. The size of the tank.
   D. The area being sprayed.

14. At the start of a spraying operation, the tank of a compressed air sprayer should be:

A. One-fourth full of spray liquid.
B. One-half full of spray liquid.
C. Two-thirds to three-fourths full of spray liquid.
D. Entirely full with spray liquid.

15. At the start of a spraying operation, the compressed air sprayer should have a tank pressure of approximately:

A. 20 psi.
B. 30 psi.
C. 45 psi.
D. 55 psi.

16. The Multeejet nozzle has:

A. 3 openings.
B. 4 openings.
C. 5 openings.
D. 6 openings.

17. A number 8002 Teejet nozzle should not be closer to the surface being sprayed than:

A. 18 inches.
B. 20 inches.
C. 24 inches.
D. 30 inches.

18. A fog or mist must be dispensed:

A. Upwind.
B. Crosswind.
C. Downwind.
D. Only in very still air.

19. Which of the following is <u>NOT</u> true regarding mist and fog applicators?

A. Their operation is economical because of low manpower requirements.
B. They allow the application of small amounts of concentrated insecticide to large areas.
C. They are complex in design and require frequent servicing.
D. They are high volume, enabling the quick treatment of large portions of a city during disasters and in periods of high insect abundance.

20. Particle size produced by mist machines can be varied by:

    A. Increasing or decreasing air velocity.
    B. Using fine or coarse spray nozzles.
    C. Light or heavy spray oil.
    D. All of the above.

21. The optimum particle size of an aerosol effective against adult mosquitoes and flies is:

    A. 200 - 400 microns.
    B. 100 - 200 microns.
    C. 50 - 100 microns.
    D. 10 - 50 microns.

22. The correct amount of malathion to apply in aerial ULV application is:

    A. 2 oz. per acre.
    B. 3 oz. per acre.
    C. 4 oz. per acre.
    D. 5 oz. per acre.

23. If a vehicle moves at a speed of five miles per hour and a mist or fog applicator lays down a 50 foot wide swath, how many acres per hour will be covered?

    A. 10 acres per hour.
    B. 20 acres per hour.
    C. 30 acres per hour.
    D. 40 acres per hour.

24. If an insecticide application machine travels one mile and has an effective swath width of 200 feet, how many acres will be treated?

    A. 25 acres
    B. 50 acres
    C. 75 acres
    D. 100 acres

25. Basic rules to be followed in the care of a sprayer include which of the following?

    A. Strain formulations through cheesecloth to keep particles out.
    B. Rinse the sprayer thoroughly after every use.
    C. Do not let water freeze in the sprayer.
    D. All of the above.

Part II: True-False - Mark "A" for True, "D" for False.

1. Tanks of compressed air sprayers are constructed of stainless steel, brass, or galvanized steel.

2. Stainless steel used in tanks of compressed air sprayer is not corrosion resistant.

3. If a compressed air sprayer is not provided with an air release, it is advisable to turn the tank upside down and release the air through the spray gun.

4. The solid-stream nozzle applies a fine jet of insecticide to treat cracks and crevices for the control of cockroaches, ants, etc.

5. The flat-spray nozzle is used chiefly for residual applications of insecticides.

6. The hollow-cone nozzle should be used exclusively for fly larviciding.

7. A Teejet nozzle number 5004 has four different apertures.

8. Teejet nozzle number 8002 will deposit 200 milligrams of insecticide per square foot, when surfaces are being treated at a rate of 190 sq. ft. per minute with a 2.5 percent solution of insecticide.

9. The hand pump atomizer uses a piston pump to force air over the upper end of a small tube. This draws the insecticide from a tank attached to the pump, and breaks the liquid up into droplets.

10. The pistol sprayer produces a fine mist of insecticide when the trigger is pulled.

11. Hand shakers are hopeless for putting insecticidal dusts on difficult-to-reach areas.

12. The hand bellows is excellent for applying dusts indoors where careful placement and neatness are essential.

13. Rotary dusters are used effectively for applying insecticidal dusts for controlling fleas, ticks, and other ectoparasites around homes.

14. Power sprayers of 50- to 150-gallon capacity are suitable for extensive application of a residual insecticide to fences, porches, and out buildings.

15. Mist applicators are designed to apply a residual deposit of insecticides over large areas.

16. Fog generators depend upon favorable air currents for distribution of the insecticide.

17. A mist is composed of fine particles (average diameter 40 microns) that will remain suspended for a long period of time.

18. Mist blowers use a large air fan to produce a column of wind into which liquid insecticide is injected.

19. Oil solutions must be used in thermal fog generators.

20. Ultra-low-volume spraying is defined as the application of technical grade insecticide at a rate not to exceed two quarts per acre.

21. Recommended dosages of technical grade insecticide for adult mosquito control using the ULV aerosol method are 0.5 oz. of malathion, or 3 oz. of naled, per acre.

22. Paint brushes are especially suited to household insect control.

23. Dichlorvos resin strips give effective control of household insects for about a year.

24. In actual practice, people who apply insecticides outdoors figure that one acre is approximately 8 feet wide and 1 mile (5280 feet) long.

25. Sprayers are easier to maintain than dusters.

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NAME_____

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LESSON 3

SELF-STUDY COURSE 3013-G

Vector-Borne Disease Control

ANSWER SHEET

PART I					PART II		
NO.	A	B	C	D	NO.	A	D
1	0	0	0	0	1	0	0
2	0	0	0	0	2	0	0
3	0	0	0	0	3	0	0
4	0	0	0	0	4	0	0
5	0	0	0	0	5	0	0
6	0	0	0	0	6	0	0
7	0	0	0	0	7	0	0
8	0	0	0	0	8	0	0
9	0	0	0	0	9	0	0
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11	0	0	0	0	11	0	0
12	0	0	0	0	12	0	0
13	0	0	0	0	13	0	0
14	0	0	0	0	14	0	0
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18	0	0	0	0	18	0	0
19	0	0	0	0	19	0	0
20	0	0	0	0	20	0	0
21	0	0	0	0	21	0	0
22	0	0	0	0	22	0	0
23	0	0	0	0	23	0	0
24	0	0	0	0	24	0	0
25	0	0	0	0	25	0	0

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